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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/631,149	07/31/2003	Phillip B. Blankenship	SEM225-00/08422	2224

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HEAD, JOHNSON & KACHIGIAN  
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TULSA, OK 74119

EXAMINER
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MILLER, DANIEL H

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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11/24/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/631,149	<b>Applicant(s)</b> BLANKENSHIP ET AL.	
	<b>Examiner</b> DANIEL MILLER	<b>Art Unit</b> 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 October 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier (UK 1448158) in view of Cramwinckel (U.S. 3,822,556), further in view of Chen [Construction and Building Materials 16 (2002) 313-319; Jian-Shiuh Chen; Evaluation of internal resistance in hot mix asphalt concrete (available on-line 13 Aug. 2002)].

2. Regarding claim 1, Maier teaches a paved surface having 12% natural sand and bitumen binder (page 1 line 70-75 and page 4 line 5-10).

3. The binder contains asphalt and polyamine (see claim 1). Applicant discloses the uses a polyamide (polymer) additive (remarks 6/6/07), which are similar amine based polymer. Polyamine and Polyamide are generic classes of polymers and neither Maier, nor applicant, teach which specific polymer is used. Further, Regarding claim 2, the binder is considered to be a binder traditionally used to modify an asphalt binder for use in paving surfaces (as claimed).

4. Regarding claim 6, the layer is inherently a substantially impermeable polymer.
5. Maier is silent as to the binder being petroleum based, the selection of binder based on climate, or the stability and fatigue levels of the pavement.
6. Cramwinckel teaches asphalt with a bitumen binder that is impermeable to water with a thickness of 2.5 cm (column 1 line 30-35, column 2 line 45-50).
7. Cramwinckel further teaches that the bitumen binder can be prepared from any suitable material (column 2 line 63-68) and can be adapted to the climate conditions (column 3 line 1-4). Further, regarding claim 6, Cramwinckel further teaches the asphalt is impermeable to water (column 1 line 30-35).
8. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maier to incorporate a binder that would be appropriate for applications under particular climates as taught by Cramwinckel. Further, it would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the composition of the aggregate, including choosing from coal and/or petroleum based binders, in order to optimize the stability fatigue level, and resistance to reflective cracking of the pavement for the intended application and to maximize the suitability of the material for particular climates. Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).
9. However, both Maier and Cramwinckel are silent as to the percentage of aggregate less than about 4.75 mm.

10. Chen teaches that it is desirable to select aggregates based on properties of the aggregate to produce high quality paving mixtures (abstract). Specifically, selecting a range of fine aggregate passing through a 4.75 mm sieve is desirable (abstract). Chen teaches preparing several comparative aggregate and binder mixes with a 10%, 20%, 30%, 40%, and 50% aggregate passing through a 4.75 mm sieve respectively (see figures and section 2.1). The 50% mixture of Chen has increased tensile strength over the other samples and low void formation compared to other samples (see figures 2 and 3).

11. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Maier and Cramwinckel to include 50% or more aggregate having a sieve size less than about 4.75 mm in order to produce a high quality product with increased tensile strength and low void formation. Further it would have been obvious to one of ordinary skill in the art at the time of the invention to increase the percentage of aggregate having a sieve size less than about 4.75 mm to a range of about 60% to about 99.8%, as claimed, because one of ordinary skill would expect, based on the data of figure 2 (Chen), that an increase in the percentage would lead to higher tensile strengths and therefore stronger roads. Finally, further decreasing between 40% to about 70% (which overlaps Chen's taught ranges) of the aggregate size to 1.18 mm (a standard sieve size known in the art), as in applicant's claim 10, would be expected by one of ordinary skill to produce an even higher quality mixture with high tensile strength and lower void formations based on the teachings of Chen and therefore would also be obvious.

12. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maier in view of Cramwinckel (U.S. 3,822,556) further in view of Chen [Construction and Building Materials 16 (2002) 313-319; Jian-Shiuh Chen; Evaluation of internal resistance in hot mix asphalt concrete (available on-line 13 Aug. 2002)], as applied to claim 1, and still further in view of Malloy et al (U.S. 6,669,773).

13. Maier teaches a paved surface having 12% natural sand and bitumen binder (page 1 line 70-75 and page 4 line 5-10).

14. However, Maier in view of Cramwinckel further in view of Chen, discussed above, are silent as to the aggregate asphalt comprising less than 10% or 5% natural sand.

15. Malloy teaches a synthetic lightweight aggregate (SLA) used as a substitute for sand in paving construction (column 1 line 10-20; column 9 line 10-25). The aggregate has the advantage of being a cheaper recycled material and favored in applications where weight is a concern (column 1 line 26-33 and 48-54).

16. Therefore, since it was known at the time of the invention to use a less sand in an asphalt pavement application it would have been obvious to one of ordinary skill in the art to replace all or some of the sand because it can be cheaper and provide a lower density aggregate.

17. It would have been obvious to one having ordinary skill in the art at the time of the invention to adjust the composition of the aggregate, including adjusting the

percentage of sand in order to optimize the stability and fatigue, and level and resistance to reflective cracking of the pavement for the intended application and to maximize the suitability of the material for particular climates. Since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

18. Applicant's arguments filed 8/14/2008 have been fully considered but they are not persuasive.

19. The 112 rejection has been withdrawn due to amendment. The newly amended claims with newly claimed ranges are not considered to place the claims in condition for allowance (see rejection above).

20. Applicant has not set forth an argument for why one of ordinary skill would not be motivated to produce the claimed invention given the teachings of the references above and what is known by one of ordinary skill in the art. Applicant has merely recited the claim language, and the teachings of the references without asserted a specific reasoning not to combine the references or an assertion that the art of record has a motivating teaching away from the combination.

21. Applicant has offered non substantive arguments instead, "Contrary to the Examiner's position, it is respectfully submitted that the Chen reference does not supply the deficiencies of the combination of the teachings of the Maier reference and the

Cramwinckel reference” (page 8 arguments). Then a recitation of some of the teachings of the reference, followed by a conclusory statement such as, “For the reasons set forth above, it is respectfully submitted that the Maier reference does not disclose the elements of claim 1; and the Cramwinckel reference and the Chen reference do not supply the deficiencies of the Maier reference. None of the references, either singularly or in combination discloses, teaches, or even suggests the interlayer recited in Applicant's claim 1, as amended” (page 9 arguments). It is the examiner's position that this does not amount to a substantive response to the obviousness rejection. It would be obvious to try 60%, as claimed, given the teachings of the superior properties at a 50% mixture of Chen (which is above the 45% mixture point wherein Chen teaches lowering of internal resistance, as cited in applicant arguments page 8). The 50% mixture is taught to be superior because of its increased tensile strength over the other lower percentage samples with lower void formation despite having lower internal resistance (see figures 2 and 3). Applicant has not addressed why ranges at 60 %, just incrementally above the disclosed 50%, would not be obvious in light of the teachings of the reference. Rejection maintained.

### ***Conclusion***



22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL MILLER whose telephone number is (571)272-1534. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571)272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Miller

/KEITH D. HENDRICKS/

Supervisory Patent Examiner, Art Unit 1794